EVALUATING THE IMPACT OF SELECTED ECONOMIC AND INSTITUTIONAL FACTORS ON POVERTY LEVELS IN NIGERIA

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ABSTRACT

Poverty denies individuals access to crucial resources like food, shelter, healthcare, and education, which in turn lowers overall productivity and economic potential. This research investigates the influence of economic and institutional factors on poverty rates in Nigeria through quantitative methods, utilizing time series data spanning from 1996 to 2024. The study employed autoregressive distributed lagged (ARDL) and error correction model (ECM) estimation techniques. Results indicate that access to finance significantly decreases poverty rates at the 5% level of significance by enabling marginalized groups to invest in education, healthcare, and entrepreneurial ventures. Innovation also reduces poverty by stimulating economic growth and opportunities and is statistically significant at the 5% level of significance. Foreign direct investment (FDI) has a negative impact on poverty rates by generating employment and transferring knowledge and technology, also statistically significant at the 5% level of significance. While corruption was not immediately significant, it showed a long-term significant effect. The study concludes that addressing these economic and institutional factors is a key to sustainable poverty reduction in Nigeria. Policy recommendations include improving financial inclusion, fostering innovation, enforcing strict anti-corruption measures, and creating an environment conducive to FDI to drive long-term economic development and poverty alleviation.

Keywords: Access to finance; Corruption; Innovation; Poverty; Foreign direct investment
JEL Classification: F21, O15, O33

INTRODUCTION
Poverty is a widespread and significant issue that affects millions of individuals and communities worldwide, depriving them of essential resources such as food,

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shelter, and thereby diminishing their overall quality of life. The impacts of poverty extend beyond individual suffering, influencing societal and national levels by reducing economic productivity and potential. High poverty rates are associated with increased social inequality, poor health outcomes, and limited educational opportunities, which together perpetuate a difficult cycle of poverty (Clementi, 2024). Despite being one of Africa's largest economies, Nigeria continues to struggle with high poverty rates. Various institutional factors are crucial in this context, either worsening or alleviating poverty. Key factors include access to finance, innovation, corruption, and foreign direct investment (FDI). Financial resources enable individuals and businesses to seize opportunities that can lift them out of poverty. Similarly, innovation promotes economic growth and job creation. On the contrary, corruption can divert resources intended for poverty reduction, while FDI has the potential to create jobs and transfer knowledge and technology, provided there are strong institutional frameworks in place.

In a related study, Dada and Fanowopo (2020) examined the impact of institutions on economic growth and poverty alleviation in Nigeria from 1984 to 2018. Using the Autoregressive Distributed Lag (ARDL) co-integration technique, they found that economic growth and institutional quality positively affected household consumption both in the short term and long term. Their research highlighted the importance of strong institutions alongside robust economic growth in addressing poverty. Likewise, Fagbemi, Oladejo, and Adeosun (2020) explored the relationship between institutional quality and poverty in Nigeria from 1984 to 2017. Employing dynamic least squares, canonical co-integrating regression, and vector error correction methods, their findings indicated that democratic accountability and the rule of law significantly contribute to poverty reduction. This study delves into the complex interactions between corruption, access to finance, innovation, and cross-border investment in reducing poverty rates by conducting thorough theoretical analyses and empirical investigations.

LITERATURE REVIEW
Conceptual Review
Concept of Poverty
Poverty is often defined as the inability of individuals to meet their basic needs such as food, shelter, clothing, and healthcare (World Bank, 2020). It is commonly measured using the absolute poverty line, which sets a fixed standard of living as the benchmark (World Bank, 2020). According to the World Bank, individuals who live on less than $1.90 per day are considered poor. This measure facilitates comparisons across different countries and regions (World Bank, 2020). However, critics argue that absolute poverty measures do not take into account the varying costs of living and social needs across different contexts (Ravallion, 2016).

Amartya Sen's capability approach provides another perspective, viewing poverty as the lack of freedom to achieve essential life functions such as being healthy, educated, and participating in community life (Sen, 1999). This approach emphasizes the importance of considering the broader social and institutional contexts that limit individuals' opportunities and choices. Alkire and Foster (2011) pointed out that poverty is not solely about income but also about access to essential services and opportunities.

Concept of Access to Finance

Access to finance, as described by Ayyagari, Demirgüç-Kunt and Maksimovic (2011), refers to the availability of useful and affordable financial products and services for all individuals and businesses. It is essential for economic growth and poverty reduction because it supports entrepreneurship and innovation. By supplying the necessary capital for start-ups and small enterprises, financial services allow entrepreneurs to create new products, expand into new markets, and generate employment. This process, in turn, promotes economic diversification and strengthens resilience (Ayyagari, Demirgüç-Kunt & Maksimovic, 2011).

Concept of Innovation

Chesbrough (2003) defines innovation as a combination of incremental improvements and radical breakthroughs that involve generating new ideas to drive economic growth, improve living standards, and enhance competitiveness. Over time, the concept of innovation has increasingly emphasized the importance of collaboration and networks. Chesbrough's notion of open innovation highlights the value of incorporating external ideas and partnerships, encouraging organizations to leverage external knowledge and resources beyond their internal capabilities (Chesbrough, 2003). Similarly, Hart and Milstein (2003) view innovation as a critical element in developing solutions that promote growth and address various challenges.

Concept of Foreign Direct Investment (FDI)

The Corporate Finance Institute (n.d.) defines Foreign Direct Investment (FDI) as cross-border investments made by multinational corporations or the government of one country into another country (the host country). This type of cross-border business has the potential to foster global economic integration and contribute significantly to the economy in the long term. Unlike portfolio investments, which are passive holdings of securities, FDI involves a considerable and enduring interest, often with the aim of exerting control or substantial influence over the foreign entity.

Concept of Corruption
Transparency International (2021) defines corruption as the misuse of entrusted power for personal gain. This encompasses activities such as bribery, embezzlement, nepotism, and fraud, and can occur at various levels, from minor corruption in public services to major corruption involving high-ranking officials and substantial amounts of money (Transparency International, 2021). Gupta, Davoodi, and Alonso-Terme (2002) argue that corruption worsens inequality and poverty by redirecting resources away from those in need and concentrating power in the hands of a few. They contend that this undermines the provision of social services, disproportionately impacting the poor and marginalized (Gupta, Davoodi, & Alonso-Terme, 2002).

Theoretical Review
Institutional Theory
This study identifies institutional theory as the most appropriate framework for examining the relationship between innovation, corruption, access to finance, and foreign direct investment and poverty alleviation. Institutional theory provides insights into how laws, regulations, norms, and practices shape organizational behaviour and societal outcomes. According to Kaufmann and Vicente (2011), this theory is relevant for exploring the impact of institutional factors on poverty, highlighting both formal and informal rules that influence economic development and social well-being. They argue that Institutional Theory can analyse the effects of anti-corruption laws, enforcement mechanisms, and governance structures on corruption levels and poverty reduction, as well as how corruption undermines institutional quality and economic development (Kaufmann & Vicente, 2011).

By utilizing institutional theory, this study aims to shed light on the interplay between various institutional factors and their impact on poverty reduction in Nigeria. This approach allows for an examination of the wider context within which these factors function and provides evidence-based recommendations for policy and institutional reforms.

Innovation Theory
While innovation is another theory applicable to this study, it may not be as adaptable as institutional theory. Innovation theory covers a wide range of perspectives on how new ideas, products, services, and processes are created and implemented, driving economic growth and societal progress. Schumpeter (1934) laid the groundwork for innovation theories in the early 20th century, describing innovation as driving "creative destruction" that replaces outdated technologies and practices with new ones. Although Schumpeter is often considered the father of innovation theory, Chesbrough's (2003) concept of "Open Innovation" challenges

the traditional view of innovation as an internal, closed process within firms. He advocates for companies to leverage external ideas, technologies, and partnerships to enhance their innovation capabilities. Open innovation emphasizes the importance of knowledge exchange and collaboration, suggesting that combining external innovation sources with internal R&D efforts can lead to greater success. Recently, Hart and Milstein (2003) connected innovation with poverty, highlighting that innovation is crucial for addressing global issues such as climate change, healthcare, and poverty. Sustainable innovation aims to develop solutions that drive economic growth while addressing social and environmental challenges (Hart & Milstein, 2003).

Empirical Review
The link between institutional factors such as access to finance, corruption, innovation, and foreign direct investment (FDI) and poverty rates has been studied to some extent. This relationship is intricate and multifaceted, encompassing various direct and indirect elements that influence poverty. For example, access to finance can empower individuals and businesses by providing the necessary capital for investments in education, health, and entrepreneurial ventures, thus promoting economic growth and reducing poverty. On the other hand, corruption can hinder these efforts by increasing transaction costs and decreasing the efficiency of public services, thereby exacerbating poverty (Kaufmann & Vicente, 2011).

Access to Finance and Poverty Alleviation
The link between economic and institutional factors such as access to finance, corruption, innovation, and foreign direct investment (FDI) and poverty rates has been studied to some extent. This relationship is intricate and multifaceted, encompassing various direct and indirect elements that influence poverty. For example, access to finance can empower individuals and businesses by providing the necessary capital for investments in education, health, and entrepreneurial ventures, thus promoting economic growth and reducing poverty. On the other hand, corruption can hinder these efforts by increasing transaction costs and decreasing the efficiency of public services, thereby exacerbating poverty (Kaufmann & Vicente, 2011).

Innovation and Poverty Reduction
Innovation plays a vital role in driving economic growth and reducing poverty. Numerous studies have demonstrated that fostering innovation enhances living standards and creates economic opportunities for impoverished communities. This review highlights key empirical findings on the relationship between innovation and poverty reduction. Fagbemi and Ajibike (2024) examined the impact of

innovation on poverty reduction in Nigeria, utilizing the autoregressive distributed lag (ARDL) model and Pairwise Granger causality test. Their findings indicated that process innovation can significantly reduce poverty levels in both the short and long term. Pansera and Martinez (2017) conducted an extensive literature review to investigate how grassroots innovation facilitates poverty reduction in developing countries, focusing on inclusive growth and bottom-of-the-pyramid strategies. They found that micro-innovations, such as small-scale agricultural advancements and community-based solutions, have a significant impact on poverty reduction. Similarly, Pinkovskiy and Sala-i-Martin (2009) studied the influence of innovation on poverty reduction, using parametric estimation. Their research suggested that investments in education, research, and development foster new technologies and innovations that alleviate poverty.

Foreign Direct Investment (FDI) and Poverty Alleviation
Cross-border investment, otherwise known as FDI, is acknowledged as a potential driver of poverty alleviation. Topalli et al. (2021) demonstrated that Foreign Direct Investment (FDI) can reduce poverty by creating jobs, transferring technology, and promoting economic development, using a panel GMM estimator. Similarly, Ganic (2019) used panel regression analysis to examine FDI's influence on poverty reduction in twelve European transition countries. The study found that FDI reduced poverty in the Western Balkans but had an insignificant and negative relationship in Central Europe. In another study, Magombeyi and Odhiambo (2017) investigated FDI's impact on poverty reduction in Tanzania and reported that FDI can alleviate poverty in the short term.

Corruption and Poverty Alleviation
Corruption significantly hampers poverty alleviation by impeding economic growth, exacerbating income inequality, and reducing the effectiveness of poverty reduction programs. Wang (2022) studied the impact of China's poverty alleviation program on corruption, using logistic regression and generalized boosted models. The study revealed higher levels of corruption and convictions in participating counties compared to non-participants, highlighting the necessity for improved institutional designs to mitigate corruption among local bureaucrats. Transparency International (2012) noted that corruption restricts access to essential services like healthcare, education, and clean water, which are crucial for poverty alleviation. Research indicates complex relationships between corruption and economic outcomes. Gupta, Davoodi, and Alonso-Terme (2002) suggested that although corruption might initially facilitate commerce, its long-term effects are detrimental to economic growth. Bardhan (1997) observed that petty bribery and grand

corruption have different economic impacts, with grand corruption involving high-ranking officials causing more severe consequences.

METHODOLOGY
Research Design
This study examines the influence of economic and institutional factors on poverty alleviation, utilizing data from the World Bank spanning 1996 to 2024. The data includes poverty rates ($POVR$) and various economics and institutional factors such as access to finance ($ACTFN$), foreign direct investment (FDI_GDP), and the innovation index ($INOPI$) in Nigeria. We modeled poverty as a function of these factors, drawing on the institutional theory of Kaufmann and Vicente (2011), and Beck, Demirgüç-Kunt, and Levine (2000). Their theoretical propositions provided a framework for the model specification. We employed the autoregressive distributed lag (ARDL) model regression techniques to estimate the model after discovering that the variables were integrated to different orders to achieve stationarity.

Specification of Functional Model
The functional model is specified thus:

$$POVR = f(CORPI, ACTFN, FDI\_GDP, FDI\_GDP(-1), INOPI) \qquad (1)$$

The dependent variable in this study is the poverty rate ($POVR$). The independent variables include:
- $CORPI$: Corruption perception index
- $ACTFN$: Access to finance, measured by the accessibility of banking services and loans.
- FDI_GDP: Represents the percentage contribution of foreign direct investment to gross domestic product.
- $FDI\_GDP(-1)$: The lagged value of FDI's contribution to GDP.
- $INOPI$: The innovation index, measured by expenditure on research and development.

Stationarity Test:
We applied the Augmented Dickey-Fuller (ADF) test to determine the stationarity of the data. The results indicated that only FDI_GDP was stationary at level. We then transformed the non-stationary series to achieve stationarity. After applying first differencing, all variables became stationary, as shown in Table 2.

Specification of Econometric Model for Estimation

Given our unit test results, which revealed different orders of integration before achieving stationarity, we employed the autoregressive distributed lag (ARDL) model regression technique. One significant advantage of ARDL is its ability to incorporate both stationary and non-stationary variables within a single model (Pesaran & Shin, 1999). According to Pesaran, Shin, and Smith (2001), the ARDL model captures both short-term and long-term relationships among variables by including lagged values of both dependent and independent variables. This allows for the distinction between immediate fluctuations and long-term equilibrium relationships. The ARDL approach is particularly useful for studies with small sample sizes, providing robust results even with relatively limited data (Narayan, 2005). Additionally, the ARDL model can be reparameterized into an Error Correction Model (ECM), as noted by Banerjee, Dolado, and Mestre (1998), offering insights into the dynamics of adjustments towards long-term equilibrium following short-term shocks and ensuring relationship stability over time (Banerjee, Dolado, & Mestre, 1998).

Therefore, the ARDL model is specified as:

$$\Delta Y_t = \alpha + \sum_{i=1}^{p} \beta_i \Delta Y_{t-i} + \sum_{j-0}^{q} \gamma_j \Delta X_{t-j} + \lambda Y_{t-1} + \delta X_{t-1} + \varepsilon_t \qquad (2)$$

Where; ΔY_t refers to the first difference of outcome variable (Y_t) representing the poverty rate and captures its change from one period to the next period. α is the intercept term, representing the constant component of the model. $\sum_{i=1}^{p} \beta_i \Delta Y_{t-i}$ captures the differences of the past period of the dependent variable (Y_t) up to lag p and represents the short run dynamics of Y_t. $\sum_{j-0}^{q} \gamma_j \Delta X_{t-j}$ is the lagged differences of the independent variable X_t, up to lag q stand for the short run impact of X_t on Y_t. λY_{t-1} is the previous level of the dependent variable (Y_t) which captures the long run dynamic between Y_t and X_t. δX_{t-1} stand for the lagged level of the independent variable X_t that takes into account the long run equilibrium connection among Y_t and X_t. ε_t is the error term which accounts for unobserved factors outside the model.

To ensure reliable and valid results, several assumptions about the error term must be met. These assumptions are crucial to guarantee that the estimated coefficients remain unbiased, consistent, and efficient. The coefficients β_i and γ_j represent the short run adjustments. While the coefficients λ and δ represents the long run equilibrium connection involving Y_t and X_t (Pesaran & Shin, 1999).

EMPIRICAL RESULTS AND DISCUSSION
Table 1: Descriptive Statistics Results

	POVR	*CORPI*	*ACTFN*	*FDI_GDP*	*INOPI*
Mean	52.49333	22.96667	25.10000	2.177667	17.84667
Median	54.40000	25.00000	21.00000	2.200000	17.95000
Maximum	63.50000	27.00000	53.00000	5.790000	19.80000
Minimum	38.90000	13.00000	5.000000	0.500000	15.50000
Std. Dev.	8.835935	4.582450	15.08447	1.231345	1.169949
Skewness	-0.416014	-1.191878	0.458442	1.101460	-0.292822
Kurtosis	1.722924	3.031783	1.948556	4.626781	2.094309
Jarque-Bera	2.903994	7.104124	2.432762	9.374089	1.454068
Probability	0.234102	0.028665	0.296300	0.009214	0.483340
Sum	1574.800	689.0000	753.0000	65.33000	535.4000
Sum Sq. Dev.	2264.139	608.9667	6598.700	43.97014	39.69467
Observations	30	30	30	30	30

Source: Authors' computation using EViews 10, 2024.

Table 1 displays the descriptive statistics results. The average poverty rate (*POVR*) is 52.49, the highest among the variables, indicating slightly above-average poverty retention in Nigeria. The median (54.4) is close to the mean, suggesting a nearly symmetric distribution. The poverty rate range is 25, reflecting the difference between the highest and lowest rates. The standard deviation of 8.83 shows variability from the mean poverty rate. A slight negative skewness (-0.41) suggests a notable presence of wealth amid the extreme poverty. The kurtosis (1.7) indicates a platykurtic distribution, with fewer extreme values and lighter tails. The Jarque-Bera (JB) statistic (2.9) suggests a normal distribution.

The mean access to finance (*ACTFN*) value is 25.1, indicating less than average access to finance in Nigeria, with a median of 21. This shows a fairly symmetrical data distribution. A wide range of 48 highlights significant disparity in access to finance, further confirmed by a high standard deviation (15.00). The Jarque-Bera statistic (2.43) and high probability (0.29) suggest a normal data distribution.

The mean *FDI_GDP* is 2.177, reflecting a below-average contribution to Nigeria's GDP. The median value of 2.20 indicates symmetry close to the mean. A range of 5.79 shows low variability, and a standard deviation of 1.12 suggests minimal deviation from the mean. A kurtosis of 4.62 and a Jarque-Bera value of 9.37 with a low probability (0.009) indicate a non-normal distribution.

The innovation index ($INOPI$) has mean and median values of 17.8 and 17.9, respectively, showing strong symmetry. A range of 4.3 indicates minimal deviation from the mean innovation rate. The standard deviation (1.16) suggests low variability. The overall normality, measured by the Jarque-Bera statistic (1.45) and a probability of 0.48, indicates that the data are normally distributed.

Table 2: Unit root test using Augmented Dickey-Fuller Test

Variable	Level t-Statistics @ 5%	P.value	1st Difference t-Statistics @5%	P.value	Order of Integration
$POVR$	-2.967767	0.5384	-5.208094	0.0002	$I(1)$
$CORPI$	-2.319954	0.1728	-6.395223	0.0000	$I(1)$
$ACTFN$	-1.043162	0.9216	-4.145794	0.0149	$I(1)$
FDI_GDP	-3.073301	0.0399	-4.413249	0.0018	$I(0)$
$INOPI$	-2.178893	0.2177	-5.834286	0.0000	$I(1)$

Source: Authors' computation, 2024

Table 2 displays the stationarity test results. Our tests revealed that four out of five data series variables had a unit root, indicating non-stationarity at their levels. However, FDI_GDP was stationary at the level (I(0)). By integrating the data to order one (I(1)), we eliminated the unit root. The different integration levels among our study variables suggest a long run equilibrium relationship, consistent with Engle and Granger (1987).

Table 3: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.814069	127.9518	95.75366	0.0001
At most 1 *	0.707998	80.84513	69.81889	0.0051
At most 2	0.555925	46.37729	47.85613	0.0684
At most 3	0.465665	23.64795	29.79707	0.2157
At most 4	0.180747	6.099431	15.49471	0.6838
At most 5	0.018305	0.517303	3.841466	0.4720

Source: Authors' computation, 2024

Table 3 shows the results of the Johansen Co-integration Test, which used Eigenvalue and Trace statistics to determine the presence and number of co-

integrating relationships among the variables. The null hypothesis (H₀) for each test assumes at most r co-integrating relationships. The Trace Statistic tests evaluated the null hypothesis against the alternative of more than r co-integrating equations at a 5% significance level.

For the "None" hypothesis (H₀: r = 0), the Trace Statistic (127.9518) exceeded the Critical Value (95.75366) with a p-value of 0.0001, leading to the rejection of the null hypothesis and indicating at least one co-integrating relationship. For the "At most 1" hypothesis (H₀: r ≤ 1), the Trace Statistic (80.84513) surpassed the Critical Value (69.81889) with a p-value of 0.0051, indicating the existence of at least two co-integrating relationships. For the "At most 2" hypothesis (H₀: r ≤ 2), the Trace Statistic (46.37729) was less than the Critical Value (47.85613) with a p-value of 0.0684, suggesting at most two co-integrating relationships. Based on these results, there are two co-integrating relationships among the variables, indicating they share long-term equilibrium relationships despite being individually non-stationary.

Table 4: ARDL(1, 1, 0, 1, 0) Model Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
POVR(-1)	0.805552	0.172640	4.666082	0.0001
CORPI	-0.018625	0.438790	-0.042447	0.9666
CORPI(-1)	0.480381	0.382523	1.255824	0.2237
ACTFN	-1.832822	0.678197	-2.702490	0.0137
FDI_GDP	-4.631765	1.752522	-2.642914	0.0156
FDI_GDP(-1)	3.952540	1.523064	2.595124	0.0173
INOPI	-5.174019	1.648181	-3.139230	0.0052
C	93.80855	27.50652	3.410411	0.0028
@TREND	3.054170	1.316087	2.320644	0.0310
R-squared	0.879936	Mean dependent var		52.11379
Adjusted R-squared	0.831910	S.D. dependent var		8.739922
S.E. of regression	3.583258	Akaike info criterion		5.639548
Sum squared resid	256.7947	Schwarz criterion		6.063881
Log likelihood	-72.77344	Hannan-Quinn criter.		5.772444
F-statistic	18.32222	Durbin-Watson stat		1.736766
Prob(F-statistic)	0.000000			

Source: Authors' computation using EViews, 2024.

Table 4 displays the estimates from the autoregressive distributed lag (ARDL) model. The lagged poverty rate ($POVR$) has a significant positive coefficient (0.805552), indicating that previous poverty levels positively impact current rates,

reflecting poverty's persistent nature. The corruption perception index ($CORPI$) coefficient is -0.018625 and not statistically significant, while its lagged value is positive (0.480381) but also not significant, suggesting mixed effects of corruption on poverty. Access to finance ($ACTFN$) has a coefficient of -1.832822 (p-value = 0.0137), indicating that better access to finance reduces poverty by approximately 18.3%. FDI_GDP shows a significant negative impact in the first period (-4.631765, p-value = 0.0156), reflecting a 46.3% reduction in poverty, while its lagged value is significantly positive (3.952540, p-value = 0.0173), implying long-term adverse effects. The innovation index ($INOPI$) negatively impacts poverty (-5.174019, p-value = 0.0052), indicating that increased innovation reduces poverty by 51.7%.

The R-squared value is 0.879936, indicating that 88% of the variation in the poverty rate is explained by the model's explanatory variables, while the adjusted R-squared is 0.831910. The Akaike Information Criterion (AIC = 5.639548) and Schwarz Criterion (SC = 6.063881) suggest a better fit for models with lower values. The F-statistic (18.32222, p-value = 0.000000) demonstrates overall model significance, and the Durbin-Watson Statistic (1.736766) indicates no autocorrelation, reflecting a strong model fit with significant predictors impacting the poverty rate.

Table 5: F-bound Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic Value		Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	3.643977	10%	2.68	3.53
K	4	5%	3.05	3.97
		2.5%	3.4	4.36
		1%	3.81	4.92

Source: Authors' computation using EViews 10, 2024.

Table 5 presents the results of the Bound test, which assesses the presence of a long-term co-integration among the variables. The null hypothesis posits no levels relationship. The F-statistic (3.643977) exceeds the critical value for the 10% significance level (3.53) but falls below the critical value for the 5% significance level (3.97). This indicates evidence of a long run relationship among the variables at the 10% significance level, but not at the 5% level.

Table 6: T- Bound test results

t-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Sign.	I(0)	I(1)
t-statistic	-5.086134	10%	-3.13	-4.04
		5%	-3.41	-4.36
		2.5%	-3.65	-4.62
		1%	-3.96	-4.96

Source: Authors' computation using EViews 10, 2024.

Table 6 presents the T-bound test results with the null hypothesis of no levels relationship. The t-statistic (-5.086134) is lower than the critical values across all significance levels (10%, 5%, 2.5%, 1%), strongly rejecting the null hypothesis and suggesting a co-integrating relationship among the variables. The ARDL model highlights significant short-term effects of $ACTFN$, $INOPI$, and the first difference of FDI_GDP on $POVR$. The F-bounds test confirms a long-term relationship at the 10% significance level. The t-bounds test further supports a long-term co-integrating relationship, indicating the presence of both short-term and long-term dynamics.

Table 7: Regression result of ARDL Error Correction Model (ECM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	93.80855	18.93727	4.953647	0.0001
@TREND	3.054170	0.596295	5.121915	0.0001
D(CORPI)	-0.018625	0.294370	-0.063272	0.9502
D(FDI_GDP)	-4.631765	1.110771	-4.169866	0.0005
CointEq(-1)*	-0.194448	0.038231	-5.086134	0.0001
R-squared	0.626245	Mean dependent var		-0.810345
Adjusted R-squared	0.563952	S.D. dependent var		4.953595
S.E. of regression	3.271052	Akaike info criterion		5.363686
Sum squared resid	256.7947	Schwarz criterion		5.599426
Log likelihood	-72.77344	Hannan-Quinn criter.		5.437517
F-statistic	10.05330	Durbin-Watson stat		1.736766
Prob(F-statistic)	0.000063			

Source: Authors' computation, 2024.

Table 7 presents the ECM regression estimates. The first difference of $CORPI$ ($D(CORPI)$) has a negative but non-significant coefficient (-0.018625, p-value = 0.9502), suggesting short-term changes in $CORPI$ do not significantly impact the

poverty rate ($POVR$). The first difference of FDI_GDP ($D(FDI\_GDP)$) has a highly significant negative coefficient (-4.631765, p-value = 0.0005), indicating a negative short-term effect on $POVR$. The error correction term (CointEq(-1)) has a significant negative coefficient (-0.194448, p-value = 0.0001), indicating that approximately 19.44% of disequilibrium is corrected each period.

The model fit shows an R-squared of 0.626245, meaning that 62.62% of the variability in $POVR$ is explained by the model. The adjusted R-squared is 0.563952. The estimated F-statistic (10.05330) with a p-value (0.000063) indicates the overall significance of the model. The Durbin-Watson Statistic (1.736766) suggests no severe autocorrelation. The study finds that changes in FDI_GDP have a significant short-term negative effect on $POVR$, and the error correction term confirms a long-term relationship, adjusting towards equilibrium at a rate of 19.44% per period. These results highlight both short-term and long-term dynamics affecting $POVR$, with significant contributions from FDI_GDP.

CONCLUSION AND RECOMMENDATIONS
Conclusion
This study employed the ARDL model to explore the relationship between poverty rate ($POVR$) and various explanatory factors: corruption perception index ($CORPI$), access to finance ($ACTFN$), cross-border investment, and innovation index ($INOPI$). Findings indicate that access to finance and innovation significantly contributes to poverty reduction, showing a strong negative effect on poverty levels. FDI presents mixed results, with immediate reductions in poverty but potential increases in subsequent periods. Corruption does not exhibit a notable impact on poverty reduction.

Recommendations
1. **Enhance Access to Finance**: Policymakers should focus on improving financial inclusion by expanding microfinance programs, lowering credit barriers, and enhancing financial literacy.

2. **Promote Innovation**: Investment in research, education, and technology infrastructure is crucial. Supporting entrepreneurship and innovation can lead to sustainable economic growth and poverty alleviation.

3. **Optimize FDI**: Ensure that FDI is channelled into sectors that generate significant employment and economic benefits for the local population while monitoring its long-term impacts.

4. **Address Corruption**: Strengthen governance and reduce corruption to improve the effectiveness of poverty alleviation programs, despite the model not finding a significant impact.

Focusing on these strategies can foster an environment conducive to sustainable poverty reduction and economic development.

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